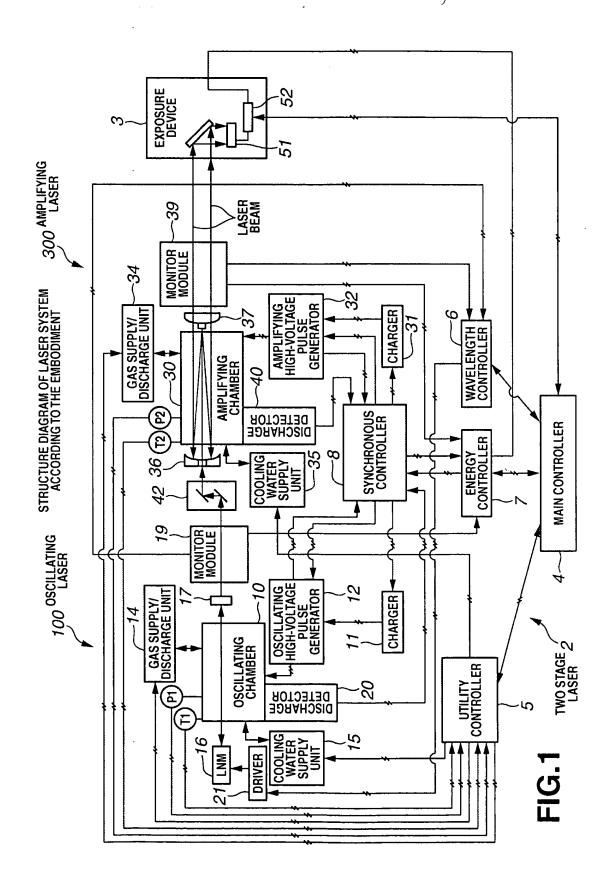
Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 1 OF 25)



STRUCTURE DIAGRAM OF EACH CHAMBER AND ITS PERIPHERY

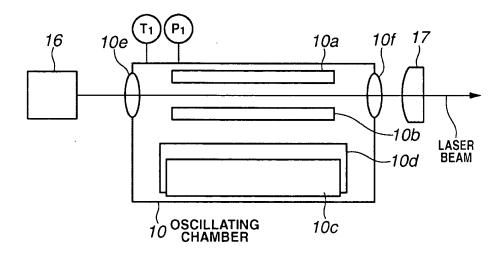


FIG.2A

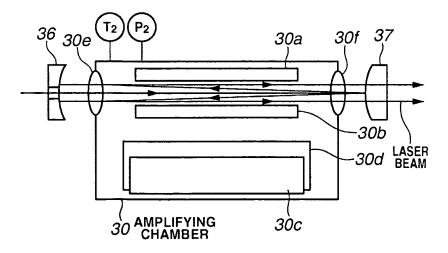


FIG.2B

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 3 OF 25)

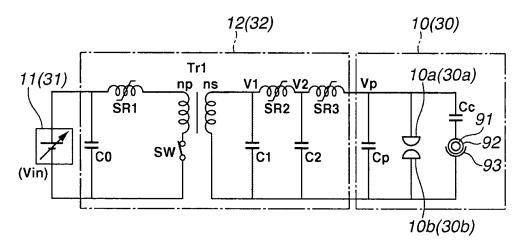


FIG.3A

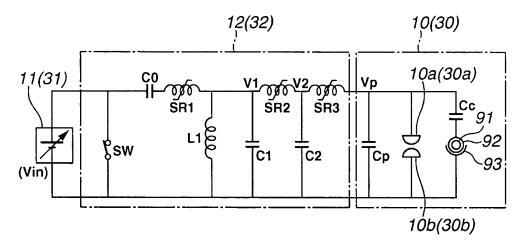
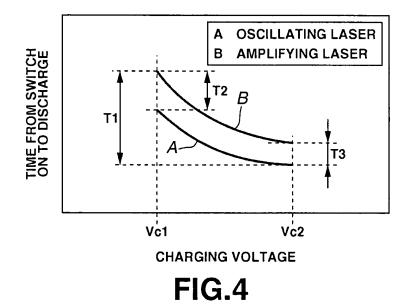


FIG.3B

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attomey Docket No.: 1110/96542 (SHEET 4 OF 25)



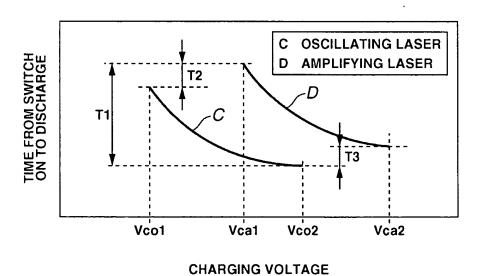
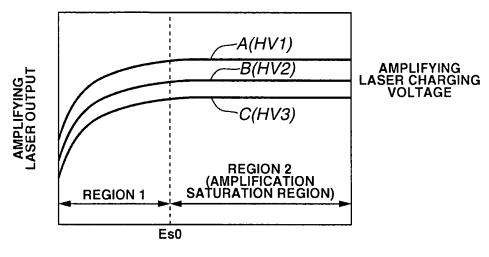


FIG.5

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 5 OF 25)

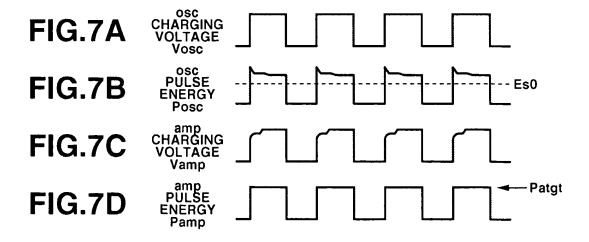
DIAGRAM SHOWING A RELATIONSHIP BETWEEN ENERGY OF SEED LIGHT INJECTED INTO THE AMPLIFYING LASER AND ENERGY AFTER AMPLIFICATION



ENERGY OF SEED LIGHT INJECTED INTO AMPLIFYING LASER INPUT

FIG.6

DIAGRAMS SHOWING INDIVIDUAL CHARGING VOLTAGES AND INDIVIDUAL PULSE ENERGIES IN FIRST CONTROL EXAMPLE



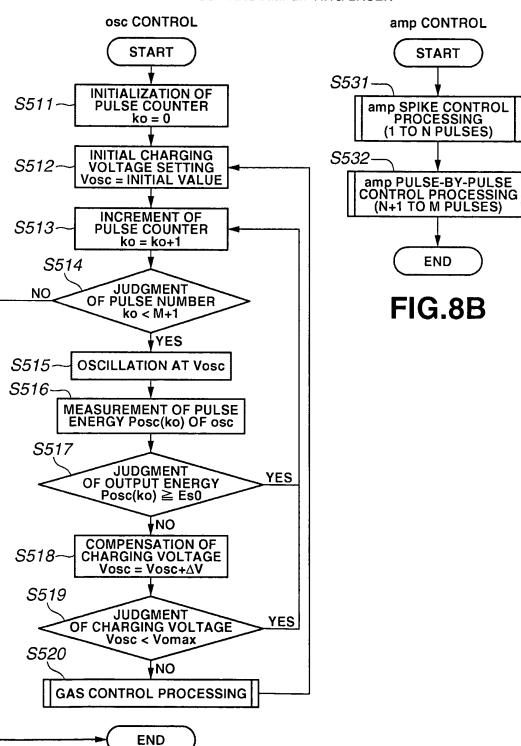


FIG.8A

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 7 OF 25)

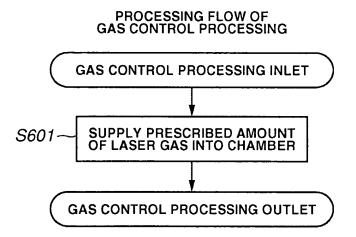


FIG.9

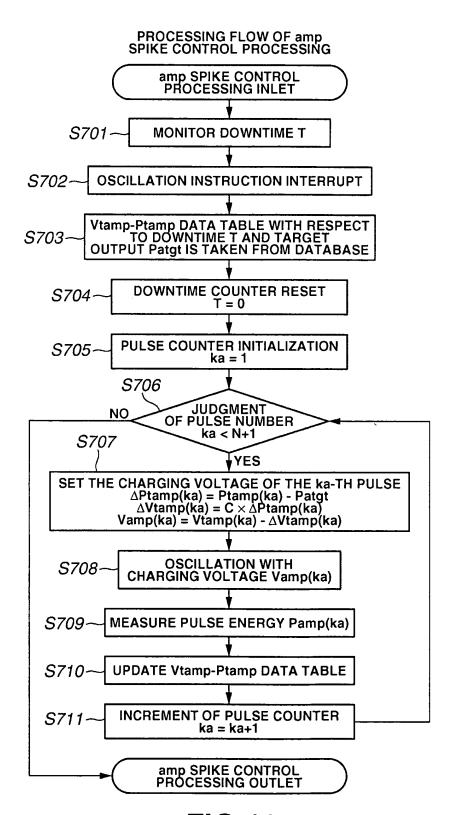


FIG.10

PROCESSING FLOW OF amp PULSE-BY-PULSE CONTROL PROCESSING

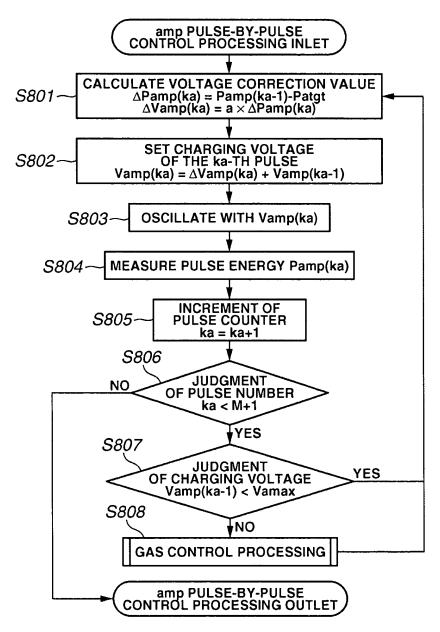


FIG.11

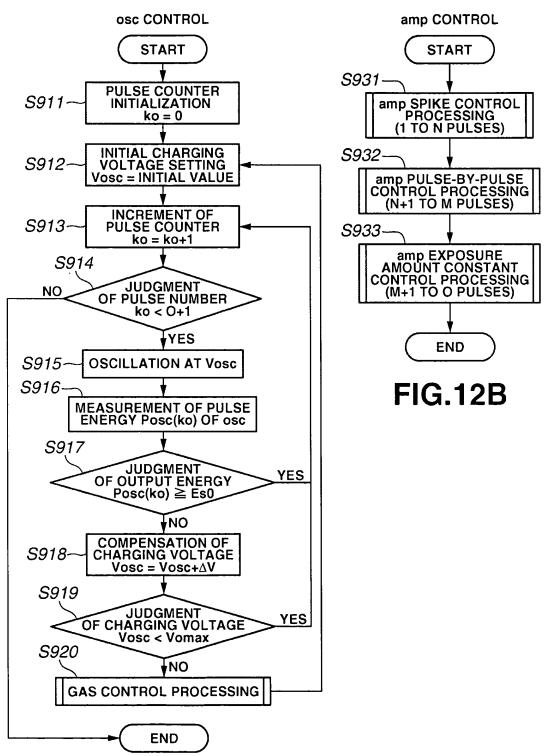
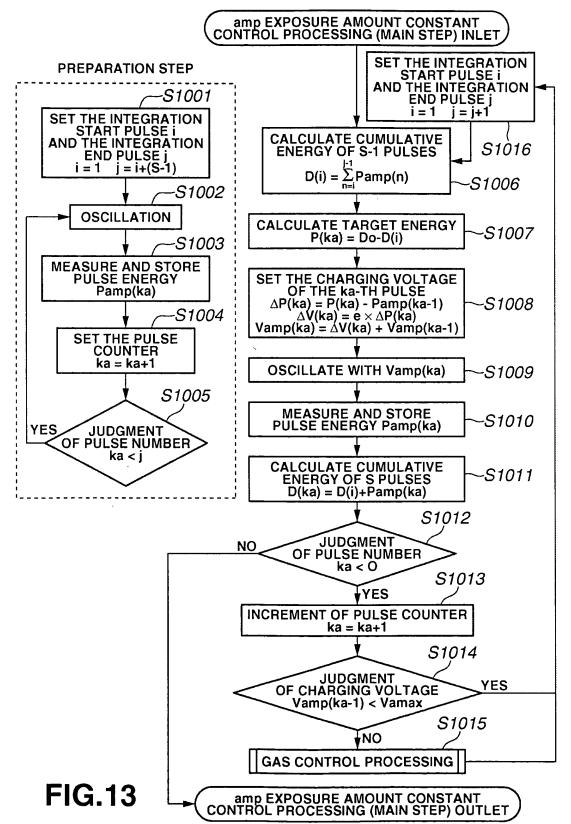


FIG.12A

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 11 OF 25)

PROCESSING FLOW OF amp EXPOSURE AMOUNT CONSTANT CONTROL PROCESSING



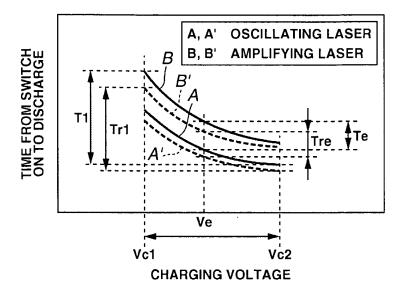


FIG.14

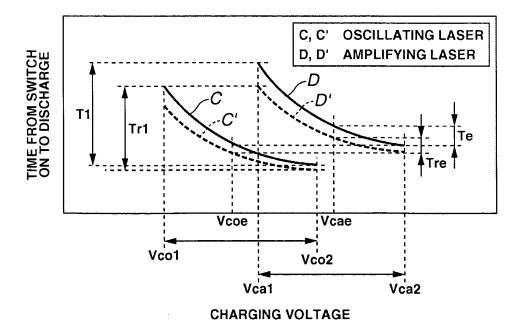


FIG.15

CONTROL FLOW OF OSCILLATING LASER

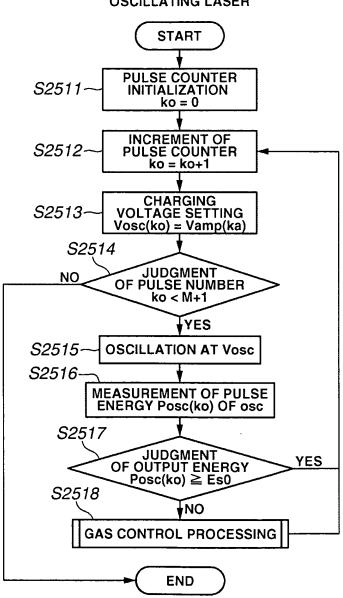


FIG.16

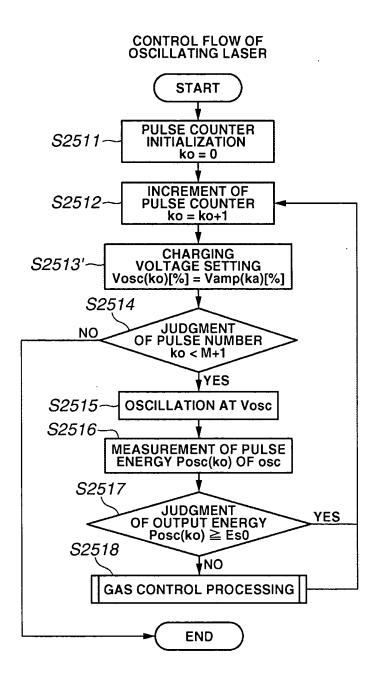


FIG.17

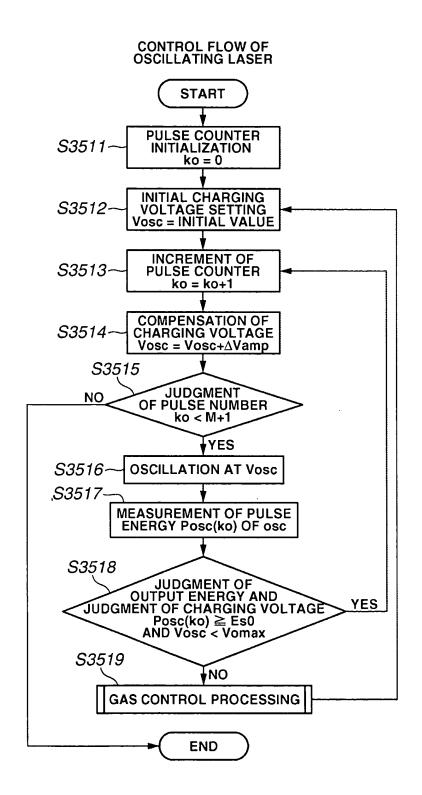
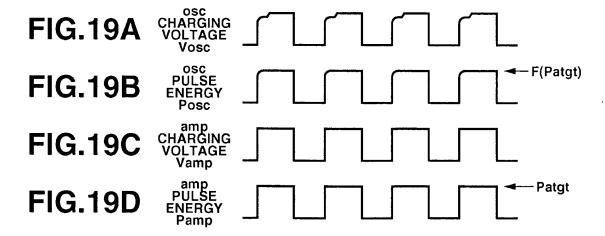


FIG.18

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 16 OF 25)

DIAGRAM SHOWING INDIVIDUAL CHARGING VOLTAGES AND INDIVIDUAL PULSE ENERGIES IN SECOND CONTROL EXAMPLE



Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 17 OF 25)

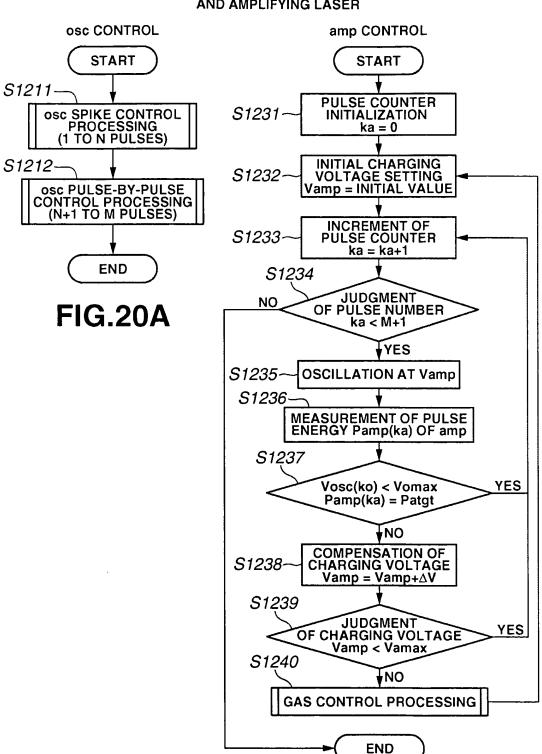


FIG.20B

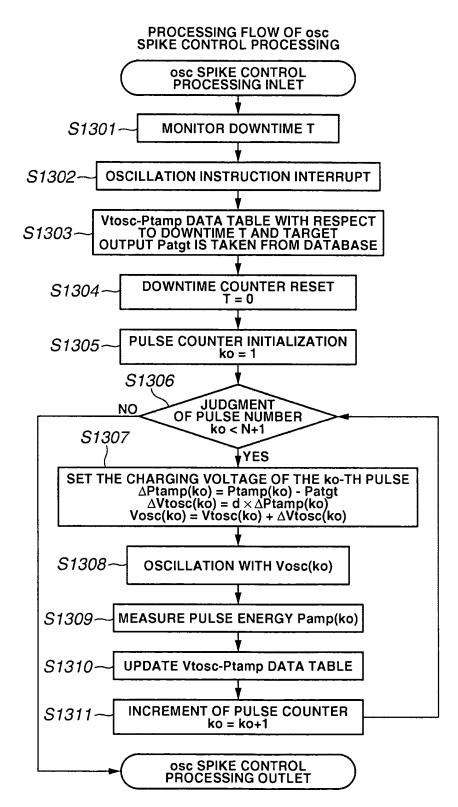


FIG.21

PROCESSING FLOW OF osc PULSE-BY-PULSE CONTROL PROCESSING

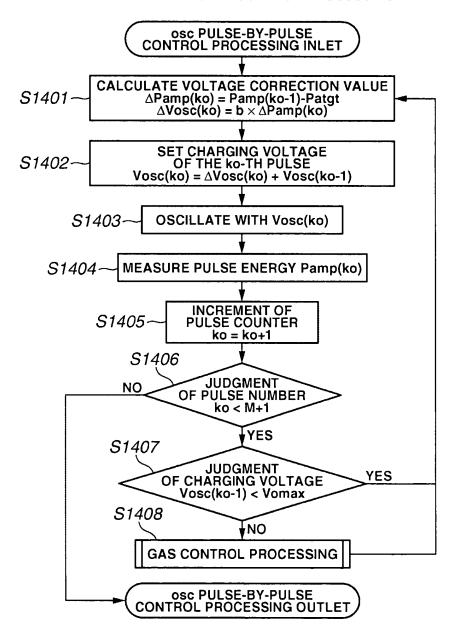


FIG.22

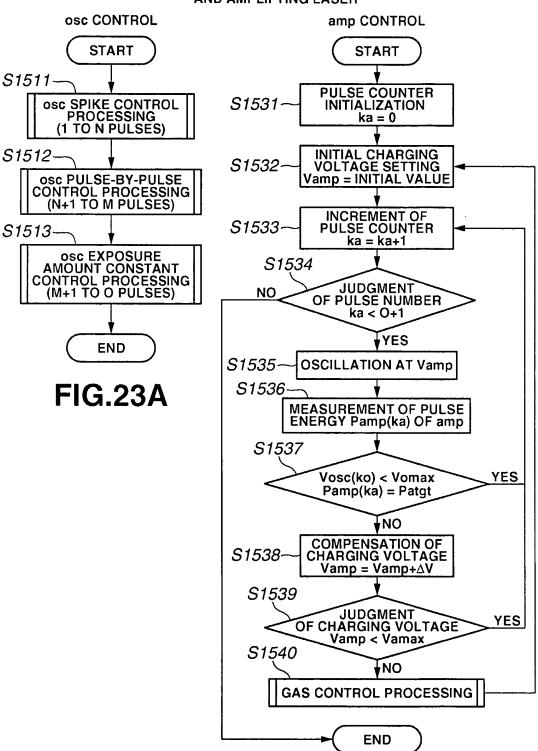
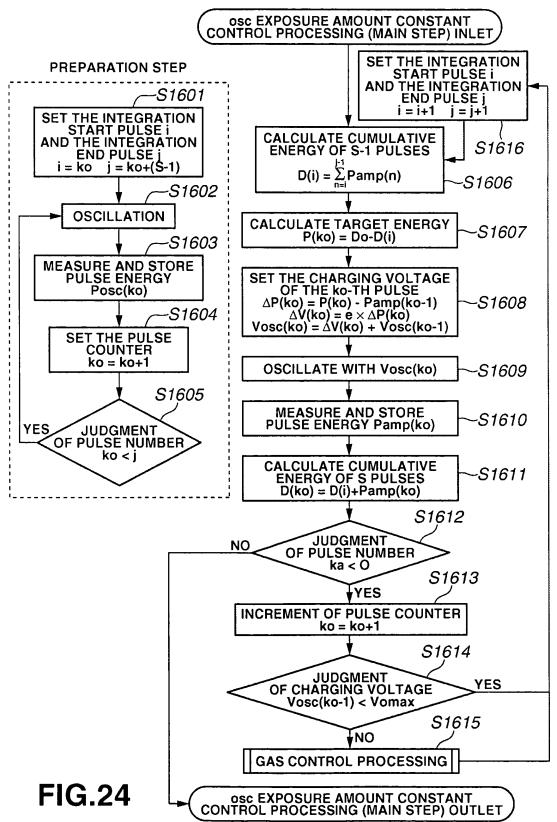


FIG.23B

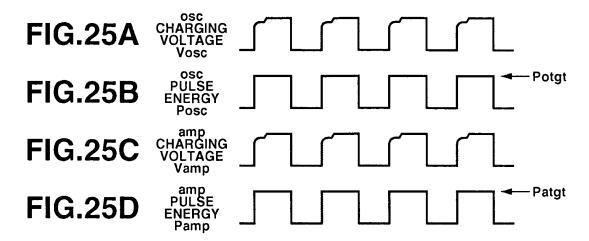
Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 21 OF 25)

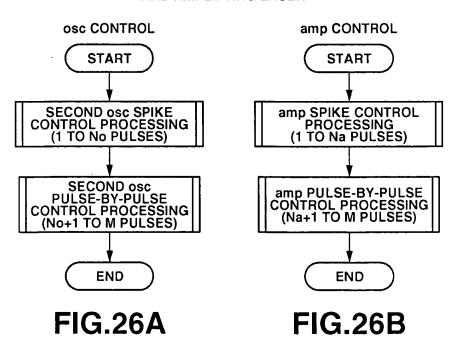
PROCESSING FLOW OF osc EXPOSURE AMOUNT CONSTANT CONTROL PROCESSING



Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 22 OF 25)

DIAGRAM SHOWING INDIVIDUAL CHARGING VOLTAGES AND INDIVIDUAL PULSE ENERGIES IN THIRD CONTROL EXAMPLE





(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki) Attorney Docket No.: 1110/96542 (SHEET 23 OF 25) PROCESSING FLOW OF SECOND osc SPIKE CONTROL PROCESSING SECOND osc SPIKE CONTROL PROCESSING INLET MONITOR DOWNTIME T S1901-S1902 **OSCILLATION INSTRUCTION INTERRUPT** Vtosc-Ptosc DATA TABLE WITH RESPECT TO DOWNTIME T AND TARGET OUTPUT Potgt IS TAKEN FROM DATABASE S1903 **DOWNTIME COUNTER RESET** S1904 T = 0**PULSE COUNTER INITIALIZATION** S1905ko = 1S1906 JUDGMENT OF PULSE NUMBER NO ko < N+1 S1907 YES SET THE CHARGING VOLTAGE OF THE ko-TH PULSE ΔPtosc(ko) = Ptosc(ko) - Potgt ΔVtosc(ko) = C × ΔPtosc(ko) $Vosc(ko) = Vtosc(ko) + \Delta Vtosc(ko)$ S1908-OSCILLATION WITH Vosc(ko) S1909-MEASURE PULSE ENERGY Posc(ko) S1910 **UPDATE Vtosc-Ptosc DATA TABLE INCREMENT OF PULSE COUNTER** S1911ko = ko + 1SECOND osc SPIKE CONTROL PROCESSING OUTLET

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE

Filed: 2/10/2006

AND TWO-STATE LASER SYSTEM

FIG.27

PROCESSING FLOW OF SECOND osc PULSE-BY-PULSE CONTROL PROCESSING

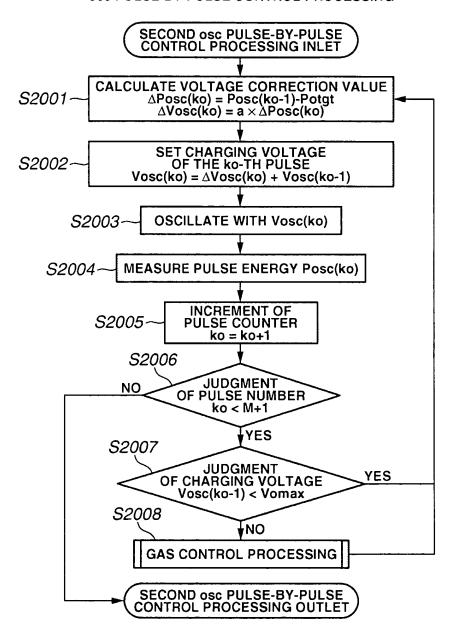


FIG.28

Title: TWO-STAGE LASER PULSE ENERGY CONTROL DEVICE
AND TWO-STATE LASER SYSTEM Filed: 2/10/2006
(Tatsuya Ariga, Osamu Wakabayashi, Kouji Kakizaki)
Attorney Docket No.: 1110/96542 (SHEET 25 OF 25)

